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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,485	05/29/2001	Charles C. Peck	YOR920000698US1	3502

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EXAMINER	
BASOM, BLAINE T	
ART UNIT	**PAPER NUMBER**
2173	7

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/865,485	PECK ET AL.	
	Examiner	Art Unit	
	Blaine Basom	2173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10,11,13,14 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10,11,13,14 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The Examiner acknowledges the Applicants' amendments to independent claims 1, 11, and 14, and the cancellation of dependent claims 9, 12, and 15. With respect to amended claims 11 and 14, the Applicants assert the Tognazzini (U.S. Patent No. 5,850,211), as described in the previous Office Action, fails to teach reversing the direction of scroll when the user's gaze position is along a line near a second side of the display, as has been added to each of these claims. In response, the Examiner presents the U.S. Patent of Lemelson et al. (U.S. Patent No. 6,351,273), which as shown below, teaches such a limitation. The Applicants' arguments with respect to claims 11 and 14 have thus been considered, but are moot in view of the following new grounds of rejection.

Regarding amended claim 1, the Applicants argue that combination of Tognazzini and Murasaki et al. (U.S. Patent No. 5,867,158, hereafter referred to as "Murasaki"), as described in the previous Office Action, fails to teach dynamically adjusting an anchor position to the position of gaze dwell, as has been added to claim 1. Particularly, the Applicants submit that Murasaki teaches changing a reference point via a mechanical input device, which a user must operate, and thus concludes that Murasaki fails to teach *dynamically* adjusting the reference point, as is expressed in claim 1. In response, the Examiner notes that the word "dynamic" is not a significantly limiting term, being associated with an immediate and concurrent occurrence (for example, see the attached definition of "dynamic," as provided by the Microsoft Computer Dictionary, Fifth Edition). The requirement for user input via a mechanical input device and the requirement for dynamically adjusting a reference point are consequently not mutually exclusive,

and in fact, dynamic adjustment of the reference point may be obtained via user input from a mechanical input device. Such discussion is moot, however, since as described in the previous Office Action, one having the teachings of Tognazzini and Murasaki would have been motivated to change the reference point via eye gaze, particularly since the system of Tognazzini is aimed at a gaze-driven environment (see column 2, lines 15-25). Further regarding claim 1, the Applicants contend that Tognazzini fails to teach that a reference position may be changed with a gaze. In response, the Examiner agrees that Tognazzini, by itself, fails to teach that a reference position may be changed via eye gaze. The Examiner nevertheless maintain that the *combination* of Tognazzini and Murasaki teaches changing a reference position via eye gaze, as Murasaki teaches changing a reference position via a mechanical input device, and since Tognazzini teaches substituting a mechanical input device with eye gaze control. For example, Tognazzini discloses that a user may select areas on a display screen via eye gaze (see column 6, lines 44-58, for example), which is analogous to selecting such areas with a mechanical input device. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,850,211, which is attributed to Tognazzini, and also over U.S. Patent No. 5,867,158, which is attributed to Murasaki et al. (and hereafter referred to as "Murasaki"). In general, Tognazzini presents a method for scrolling a page of information displayed by a computer. Tognazzini particularly discloses that the rate and direction that information is scrolled is based on the position of the user's gaze (for example, see the abstract). A computer implementing this method of Tognazzini is consequently considered a system, like that of claim 1, which is for using eye gaze to control a scroll rate of information presented on a display. Specifically regarding claim 1, Tognazzini discloses that such a system comprises: a display for displaying scrolling information; an "eyetracker," which provides a means for monitoring a gaze position on the display relative to a "reference position;" and a "controller," which provides a control means for adjusting the speed of the scrolling information if the gaze position deviates from the reference position (see column 2, lines 15-41). This reference position described by Tognazzini is considered an "anchor position," like that recited in claim 1. Tognazzini, however, does not explicitly disclose that the controller dynamically adjusts the reference position, i.e. anchor position, to the position of gaze dwell, as is expressed in claim 1.

Like Tognazzini, Murasaki presents a method for scrolling information, this method comprising: a display unit for displaying information; a means, like the eyetracker described by Murasaki, for designating a point within the display as a designate position; and a control means for scrolling the displayed information at a direction and rate dependent upon the deviation between the designate position and a reference position, i.e. anchor position (see column 5, lines 8-35; and column 7, lines 27-41). Regarding the claimed invention, Murasaki discloses that the user may dynamically adjust the reference position (for example, see column 11, lines 25-28).

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Tognazzini and Murasaki before him at the time the invention was made, to modify the system, method, and computer readable medium taught by Tognazzini such that the reference position, i.e. anchor position, may be dynamically adjusted by the user, as is done by Murasaki. It would have been advantageous to one of ordinary skill to utilize such a combination because allowing the user to select the reference position creates a scrolling means which is adapted to that particular user, as is demonstrated by Murasaki. Thus with this combination of Tognazzini and Murasaki, the reference position may be dynamically adjusted. Since the system of Tognazzini is aimed at a gaze-driven environment (see column 2, lines 15-25), and since Tognazzini teaches that a user may designate displayed screen areas with his or her gaze (for example, see column 6, lines 44-58), it is understood that the user may designate the reference position with his or her gaze. Consequently, it is understood that this combination of Tognazzini and Murasaki teaches dynamically adjusting the reference position to the position of a gaze dwell.

In reference to claims 2 and 3, Tognazzini discloses that, as a user reads a text object, the information presented by the computer display may be scrolled downwards, from the bottom of the display to the top of the display, wherein the control means increases the scroll rate if the gaze position moves below the reference position and decreases the scroll rate if the gaze position moves above the reference position (see column 5, lines 12-56). Referring specifically to claim 3, Tognazzini discloses that a display may comprise a "scroll up area," which is presented at the top of the display and which is interpreted to result in the displayed information scrolling downwards, from the top of the display to the bottom, when selected by the user's gaze (see figure 5, in addition to column 6, lines 44-58). It is therefore understood that the controller reverses the scroll direction if the gaze position moves near the top of the display. Thus, the above-described combination of Tognazzini and Murasaki teaches a system, like that recited in claims 2 and 3.

As per claims 4 and 5, Tognazzini discloses that a display may comprise a "scroll up area," which is presented at the top of the display, and which as described above, is interpreted to result in the displayed information scrolling downwards when selected by the user's gaze. It is therefore understood that when the user selects this scroll up area, the displayed information scrolls downwards, from the top of the display to the bottom of the display. Additionally, and specifically regarding claim 5, Tognazzini discloses that the display may comprise a "scroll down area," which is presented at the bottom of the display and which is interpreted to result in the displayed information scrolling upwards when selected by the user's gaze (see figure 5, in addition to column 6, lines 44-58). It is therefore understood that the controller reverses the scroll direction if the gaze position moves near the bottom of the display. Thus, the above-

described combination of Tognazzini and Murasaki teaches a system, like that recited in claims 4 and 5.

With respect to claim 6, Tognazzini discloses that the above-described reference position, i.e. anchor position, is a horizontal line at the center of the display (see figure 3, in addition to column 5, lines 16-20). Thus, the above-described combination of Tognazzini and Murasaki teaches a system, like that recited in claim 6.

Claims 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tognazzini and Murasaki, which is described above, and also over U.S. Patent No. 6,351,273, which is attributed to Lemelson et al. (and hereafter referred to as "Lemelson"). As shown above, Tognazzini and Murasaki teach a system, like that of claim 1, which is for using eye gaze to control the rate of information presented on a display. Tognazzini specifically discloses that this system comprises a controller for adjusting the speed that the information scrolls if the user's gaze position deviates from a reference position. Tognazzini, however, does not explicitly disclose that the displayed information scrolls horizontally from a first side of the display to a second side of the display, as is recited in claim 7. Consequently, Tognazzini does not disclose that the reference position, i.e. anchor position, is a vertical line at the center of the display, as is recited in claim 8.

Like Tognazzini and Murasaki, Lemelson presents a system for scrolling a page of information displayed by a computer, whereby the rate and direction that the information is scrolled is based on the position of the user's gaze (for example, see the abstract of Lemelson). Regarding the claimed invention, Lemelson further discloses that the information may be

scrolled horizontally, from a first side of the display to a second (see column 18, line 64 – column 19, line 29).

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Tognazzini, Murasaki, and Lemelson before him at the time the invention was made, to modify the system taught by Tognazzini and Murasaki such that it may be implemented to provide for horizontal scrolling, like taught by Lemelson. It would have been advantageous to one of ordinary skill to utilize such a combination because, as demonstrated by Lemelson, various applications or documents require horizontal scrolling. Thus with this combination of Tognazzini, Murasaki, and Lemelson, the scrolling information scrolls horizontally from a first side of a display to a second side of the display, as taught by Lemelson, and wherein the rate this information scrolls is dependent upon the deviance of the user's gaze from a reference position, as taught by Tognazzini. Tognazzini particularly teaches that when scrolling vertically, this reference position is a horizontal line across the center of the display (for example, see (see figure 3, in addition to column 5, lines 16-20). By analogy, it is therefore understood that when scrolling horizontally, this reference position, i.e. anchor position, is a vertical line at the center of the display. As further shown above in the rejection for claims 3 and 5, Tognazzini teaches that, when scrolling vertically from a first side of a display to a second, the scroll direction is reversed if the user's gaze moves near the second side of the display. Thus by analogy, it is understood that when scrolling horizontally, the control means reverses scroll direction if the gaze position moves near the second side of the display.

Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,850,211, which is attributed to Tognazzini, and also over U.S. Patent No. 6,351,273, which is attributed to Lemelson et al. (and hereafter referred to as "Lemelson"). In general, Tognazzini presents a method for scrolling a page of information displayed by a computer. Tognazzini particularly discloses that the rate and direction that information is scrolled is based on the position of the user's gaze (for example, see the abstract). Consequently, Tognazzini is considered to teach a method for automatically adjusting a scroll rate of information scrolling on a display. Tognazzini discloses that such method may be implemented on a computer readable medium (for example, see column 4, line 25 – column 5, line 3).

Specifically regarding claims 11 and 14, Tognazzini describes a system comprising: a display for displaying scrolling information; an "eyetracker," which provides a means for monitoring a gaze position on the display relative to a "reference position;" and a "controller," which provides a control means for adjusting the speed of the scrolling information if the gaze position deviates from the reference position (see column 2, lines 15-41). This reference position described by Tognazzini is considered an "anchor position," like that recited in claims 1 and 14. As a user reads a text object, the information presented by the computer display may be scrolled upwards, from the bottom of the display to the top of the display, wherein the control means increases the scroll rate if the gaze position moves below the reference position and decreases the scroll rate if the gaze position moves above the reference position (see column 5, lines 12-56). Additionally, Tognazzini discloses that a display may comprise a "scroll up area," which is presented at the top of the display and which is interpreted to result in the displayed information scrolling downwards, from the top of the display to the bottom, when selected by the user's gaze

(see figure 5, in addition to column 6, lines 44-58). It is therefore understood that the controller reverses the scroll direction if the gaze position moves near the top of the display. Consequently, and specifically regarding claims 11 and 14, Tognazzini is considered to teach a method and computer readable medium implementing the steps of: defining an initial anchor position near a center line of a display; scrolling information across the display at a scroll rate with new information appearing at a first side of the display and disappearing at a second side of the display; tracking a gaze position on the display; increasing the scroll rate if the gaze position moves from the anchor position toward the first side of the display; decreasing the scroll rate if the gaze position moves from the anchor position toward the second side of the display; and reversing the scroll direction if the gaze moves near the second side of the display. As the scroll up area only comprises a relatively small area at the top of the display, Tognazzini is not considered to teach reversing the scroll direction when the gaze position is *along a line* near the top of the display, as is recited in claims 11 and 14.

Like Tognazzini, Lemelson presents a system for scrolling a page of information displayed by a computer, whereby the rate and direction that the information is scrolled is based on the position of the user's gaze (for example, see the abstract of Lemelson). Additionally like Tognazzini, Lemelson describes an area which is presented at the top of the display, and which results in the displayed information scrolling downwards when selected by the user's gaze (see column 4, lines 49-60). As shown in figure 6A, this area is designated by a horizontal rectangular region, reference number 208, and located along the top line of the display.

It would have been obvious to one of ordinary skill in the art, having the teachings of Tognazzini and Lemelson before him at the time the invention was made, to modify the scroll up

area taught by Tognazzini, such that it is located along the entire top line of the display, as is done by Lemelson. It would have been advantageous to one of ordinary skill to utilize this combination because such an area, being larger in size, is more efficient to select, as is demonstrated by Lemelson.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tognazzini and Lemelson, which is described above, and also over U.S. Patent No. 5,867,158, which is attributed to Murasaki et al. (and hereafter referred to as "Murasaki"). As shown above, Tognazzini and Lemelson teach a method and computer readable medium, like that of claims 11 and 14, respectively, which are for using eye gaze to control the rate of information presented on a display. Tognazzini specifically discloses a controller for adjusting the speed that the information scrolls if the user's gaze position deviates from a reference position. Neither Tognazzini nor Lemelson, however, explicitly disclose that the controller dynamically adjusts the reference position, i.e. anchor position, to the position of gaze dwell, as is expressed in claim 13 and 16.

Like Tognazzini and Lemelson, Murasaki presents a method for scrolling information, this method comprising: a display unit for displaying information; a means, like the eyetracker described by Murasaki, for designating a point within the display as a designate position; and a control means for scrolling the displayed information at a direction and rate dependent upon the deviation between the designate position and a reference position, i.e. anchor position (see column 5, lines 8-35; and column 7, lines 27-41). Regarding the claimed invention, Murasaki

discloses that the user may dynamically adjust the reference position (for example, see column 11, lines 25-28).

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Tognazzini, Lemelson, and Murasaki before him at the time the invention was made, to modify the system, method, and computer readable medium taught by Tognazzini such that the reference position, i.e. anchor position, may be dynamically adjusted by the user, as is done by Murasaki. It would have been advantageous to one of ordinary skill to utilize such a combination because allowing the user to select the reference position creates a scrolling means which is adapted to that particular user, as is demonstrated by Murasaki. Thus with this combination of Tognazzini, Lemelson, and Murasaki, the reference position may be dynamically adjusted. Since the system of Tognazzini is aimed at a gaze-driven environment (see column 2, lines 15-25), and since Tognazzini teaches that a user may designate displayed screen areas with his or her gaze (for example, see column 6, lines 44-58), it is understood that the user may designate the reference position with his or her gaze. Consequently, it is understood that this combination of Tognazzini, Lemelson, and Murasaki teaches dynamically adjusting the reference position to the position of a gaze dwell.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. The applicant is required under 37 C.F.R. §1.111(C) to consider these references fully when responding to this action. The Amir et al. And DeLuca U.S. Patents cited therein present methods whereby eye gaze information is monitored to control various graphical user interface functions. Similarly, the Mizouchi U.S. Patent cited therein presents a method for presenting information to a user based on the user's eye gaze.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blaine Basom whose telephone number is (703) 305-7694. The examiner can normally be reached on Monday through Friday, from 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cabeca can be reached on (703) 308-3116. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

btb

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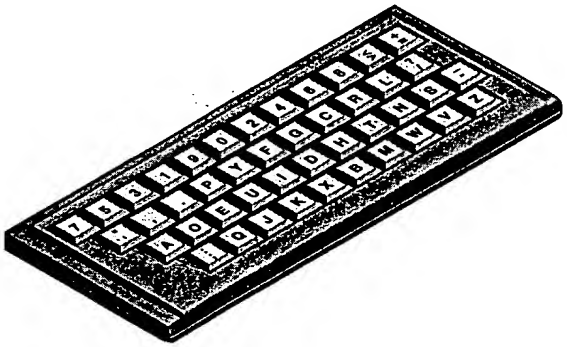
full-motion video, audio, graphics, and other data on a computer or on a CD-ROM. DVI technology was developed by RCA in 1987 and acquired by Intel in 1988. Intel has since developed a software version of DVI, called Indeo. *Also called:* digital video–interactive.

DV-I *n. See* digital video–interactive.

DVMRP *n. See* Distance Vector Multicast Routing Protocol.

Dvorak keyboard *n.* A keyboard layout developed by August Dvorak and William L. Dealey in 1936 as an alternative to the overwhelmingly popular QWERTY keyboard. The Dvorak keyboard was designed to speed typing by placing the characters on the keyboard for easiest access to the most frequently typed letters. In addition, pairs of letters that often occur sequentially were separated so that the hands could alternate typing them. See the illustration. *See also* ergonomic keyboard, keyboard. *Compare* QWERTY keyboard.



Dvorak keyboard.

DVR *n.* Acronym for **D**igital **V**ideo **R**ecording. Technology allowing broadcast television programming to be digitized and played back immediately. Television signals are routed through a hard drive, converted to a digital format and displayed in real-time or, at the viewer's option, on a delayed basis. DVR technology can be used like a VCR to record favorite programs in advance, with the user picking the programs to be recorded from an online programming guide. DVR capabilities can also be added to products that have related digital technologies and components, such as set-top boxes and digital TV converters.

DVST *n. See* direct view storage tube.

DWDM *n. See* dense wavelength division multiplexing.

DXF *n.* Short for **d**rawing interchange **f**ormat. A computer-aided design file format originally developed by Autodesk; for use with the AutoCAD program to facilitate transfer of graphics files between different applications

dyadic *adj.* Of, pertaining to, or characteristic of a pair—for example, a dyadic processor, which contains two processors controlled by the same operating system. The term is usually limited to describing a system with two microprocessors. Dyadic Boolean operations are those such as AND and OR in which the outcome depends on both values. *See also* Boolean algebra, operand. *Compare* unary.

dye-diffusion printer *n. See* continuous-tone printer.

dye-polymer recording *n.* A recording technology used with optical discs in which dye embedded in a plastic polymer coating on an optical disc is used to create minute bumps on the surface that can be read by a laser. Dye-polymer bumps can be flattened and re-created, thus making an optical disc rewritable.

dye-sublimation printer *n. See* continuous-tone printer.

Dylan *n.* Short for **Dy**namic **Lan**guage. An object-oriented programming language developed by Apple Computer in the mid-1990s for application and systems development. It includes garbage collection, type-safety, error recovery, a module system, and programmer control over runtime extensibility of programs.

dynalink *n.* Short for **dyna**mic **link.** *See* dynamic-link library.

Dynaload drivers *n.* Device drivers that are supported by Dynaload. Dynaload is a command that can be run from a DOS prompt under IBM's PC DOS 7 and will load compliant device drivers without modification of the CONFIG.SYS file. *See also* CONFIG.SYS.

dynamic *adj.* Occurring immediately and concurrently. The term is used in describing both hardware and software; in both cases it describes some action or event that occurs when and as needed. In dynamic memory management, a program is able to negotiate with the operating system when it needs more memory.

dynamic address translation *n.* On-the-fly conversion of memory-location references from relative addresses (such as "three units from the beginning of X") to absolute addresses (such as "location number 123") when a program is run. *Acronym:* DAT.